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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,394	02/11/2002	Xizeng Shi	RR1722/2346P	5569

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EXAMINER

LE, DUNG ANH

ART UNIT PAPER NUMBER

2818

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/074,394

Applicant(s)

SHI ET AL.

Examiner

DUNG A LE

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.


**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) feb 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: 

## DETAILED ACTION

### *Oath/Declaration*

The oath/declaration filed on 5/11/2002 is acceptable.

### *Election/Restriction*

**Applicant's election with traverse of claims 1-10 is acknowledged.**

Because Applicant did not distinctly and specifically point out the supposed error in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicants have the right to file a divisional, continuation or continuation-in-part application covering the subject matter of the non-elected claims.

The traversal is on the ground(s) that see the election paper. This is not found persuasive because the fields of search for method' and device claims are NOT coextensive and the determinations of patentability of method and device claims are different, that is process limitations and device limitations are given weight differently in determining the patentability of the claimed inventions. Also, the strategies for doing text searching of the device claims and method claims are different. Thus, separate searches are required.

The requirement is still deemed proper and is therefore made **FINAL**.

### *Information Disclosure Statement*

This office acknowledges of the following items from the Applicant:

Information Disclosure Statement (IDS) filed on 2/11/2002 and made of record .  
The references cited on the PTOL 1449 form have been considered.

### ***Specification***

The specification is objected to for the following reason:

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed (see MPEP § 606.01).

Note that, the claims are directed to semiconductor device instead of to a method of making a semiconductor device.

In Specification, page 4, line 17, change "Figure 2" to --Figure 1--

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### **Claim Rejections**

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1- 3 are rejected under 35 USC 102 (b) as being anticipated by Dill et al. (5898548).**

Dill et al. teaches a magnetic memory fabricated on a semiconductor substrate comprising:

a plurality of magnetic tunneling junctions 100, each of the plurality of magnetic tunneling junctions including a first ferromagnetic layer, a second Ferromagnetic layer an insulating layer between the first ferromagnetic layer and the second ferromagnetic layer; and

a plurality of shields S1/S2 for magnetically shielding the plurality of magnetic tunneling junctions 32/34, at least a portion of the plurality of shields having a high moment and a high permeability and being conductive, the plurality of shields being electrically isolated (by layers 102 and 104) from the plurality of magnetic tunneling junctions, the plurality of magnetic tunneling junctions being between the plurality of shields. (fig. 3a).

**Regarding claims 2 and 3, a first shield of the plurality of shields includes a first magnetic layer having a first easy access and a second magnetic layer having a second easy axis perpendicular to the first easy access and , a second shield of the plurality of**

shields includes a third magnetic layer having a third easy access and a fourth magnetic layer having a fourth easy axis perpendicular to the fourth easy access. (col 6, line 60).

### **Claim Rejections - 35 USC § 103**

**The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 4- 10 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Dill et al. in view of the following remark.**

**Regarding claims 4, 5 and 6, Dill discloses the claimed invention as applied to claim 1, except for having the plurality of shields include FeTa<sub>2</sub>N, the plurality of shields include FeAlN and the plurality of shields include FeCrN as cited in current claims,**

**It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the plurality of shields include by the above mentioned materials, because they are commonly used improve the shielding characteristic in the contact region, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.**

**Regarding claims 7, 8 and 9,** Dill discloses the claimed invention as applied to claim 1, except for having the plurality of shields include a material having a saturation magnetization of greater than or equal to 850memu/cm<sup>3</sup>, the plurality of shields include a material having a saturation magnetization of greater than or equal to 1750memu/cm<sup>3</sup> and the material has an anisotropy field of less than or equal to thirty Oe as claimed in current claims.

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to form the plurality of shields include the mentioned materials, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

**Regarding claim 10,** a plurality of semiconductor device S coupled to the plurality of magnetic memory cells and residing between the plurality shields. (fig. 4B).

When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung A. Le whose telephone number is (571) 272-1784. The examiner can normally be reached on Monday-Friday 8:00am- 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Dung A. Le  
P. Examiner

